ABSTRACT

The invention relates to a power supply device having several switch-mode power supplies connected in parallel to supply at least one consuming unit, each switch-mode power supply generating an output current I_0 and an output voltage $U_0(I_0, R_L)$ that is a function of the output current I_0 and a load resistance R_L, and having a control device for each switch-mode power supply, the control device having a first stage with a P element (54) that receives a P element input voltage which is derived from the output voltage $U_0(I_0, R_L)$, and generates a P element control voltage U_{VS}, that is used to control the respective switch-mode power supply, the first stage being active when $0 \leq I_0 \leq I_{0P}$, a second stage having a current reproduction circuit which reproduces the output current I_0 of the respective switch-mode power supply and generates an output current control voltage U_P which is used to control the respective switch-mode power supply, the second stage being active when $I_{0P} \leq I_0 \leq I_{0S}$, and a third stage having an amplifier circuit which amplifies a signal proportional to the output current I_0 and generates an amplified output current control voltage $m \cdot U_S$ which is used to control the respective switch-mode power supply, the third stage being active when $I_{0S} \leq I_0 \leq I_K$.